

B: BOOLEAN FUNCTION

OBJECT								
OP-CODE	000	001	010	011	100	101	110	111

GEOMETRIC LAYOUT OF DEVICE FOR N = 4

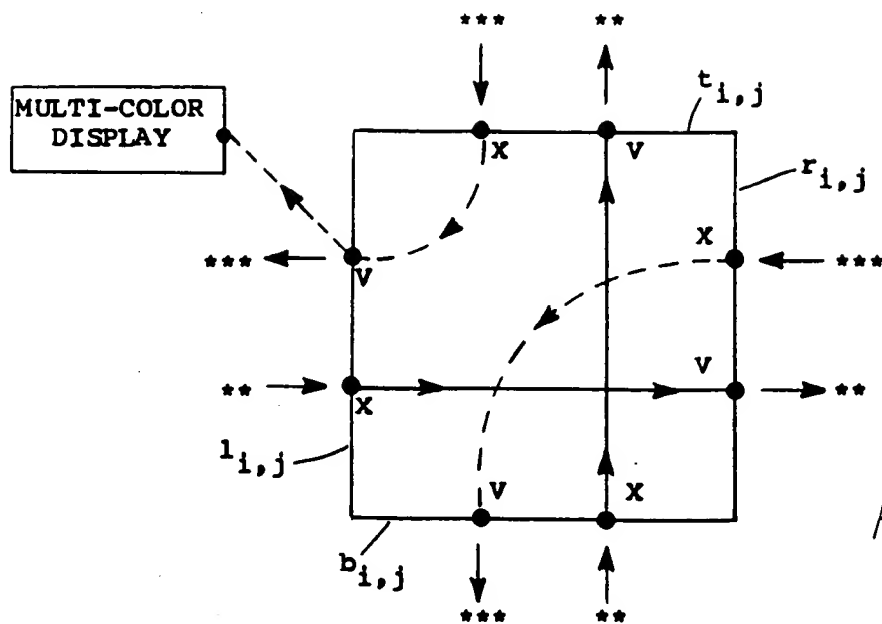


FIG. 2a

SWITCH  $W_{i,j}$ : ON ("1")

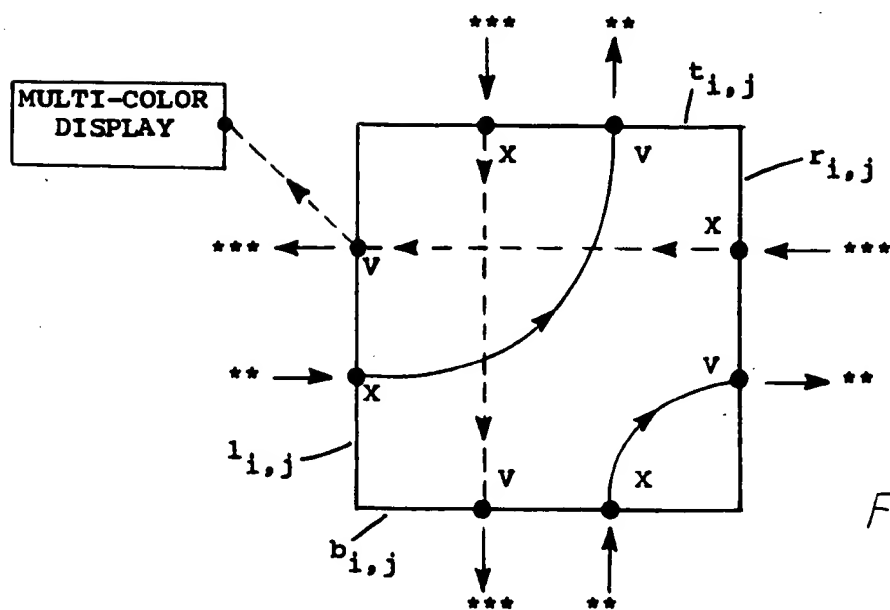
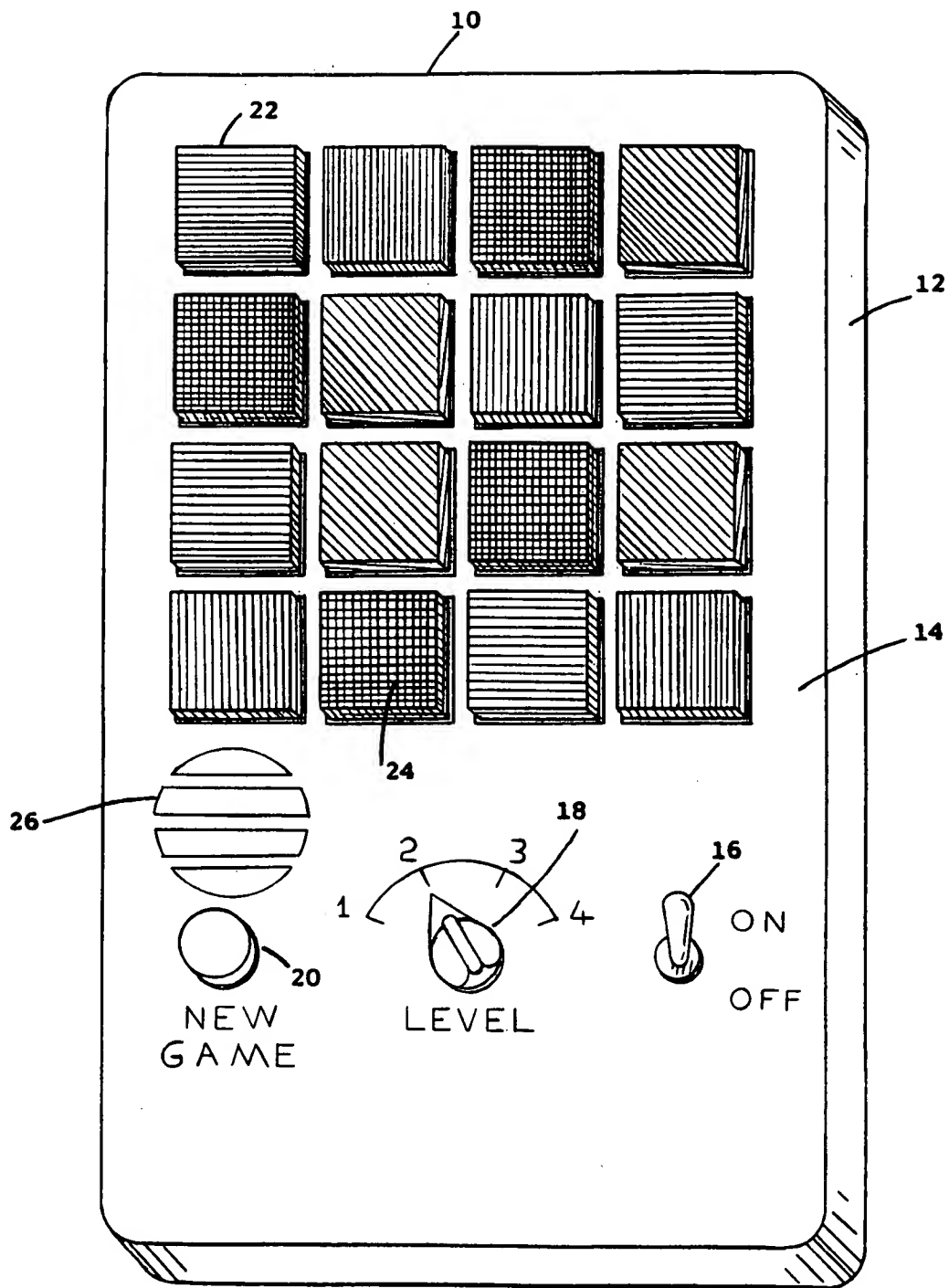


FIG. 2b

SWITCH  $W_{i,j}$ : OFF ("0")

**LEGEND:**  $**$  OP-CODE  
 $***$  COLOR CODE

ROUTING SQUARE  $S_{i,j}$



HAND HELD LOGIC GAME DEVICE

FIG. 3

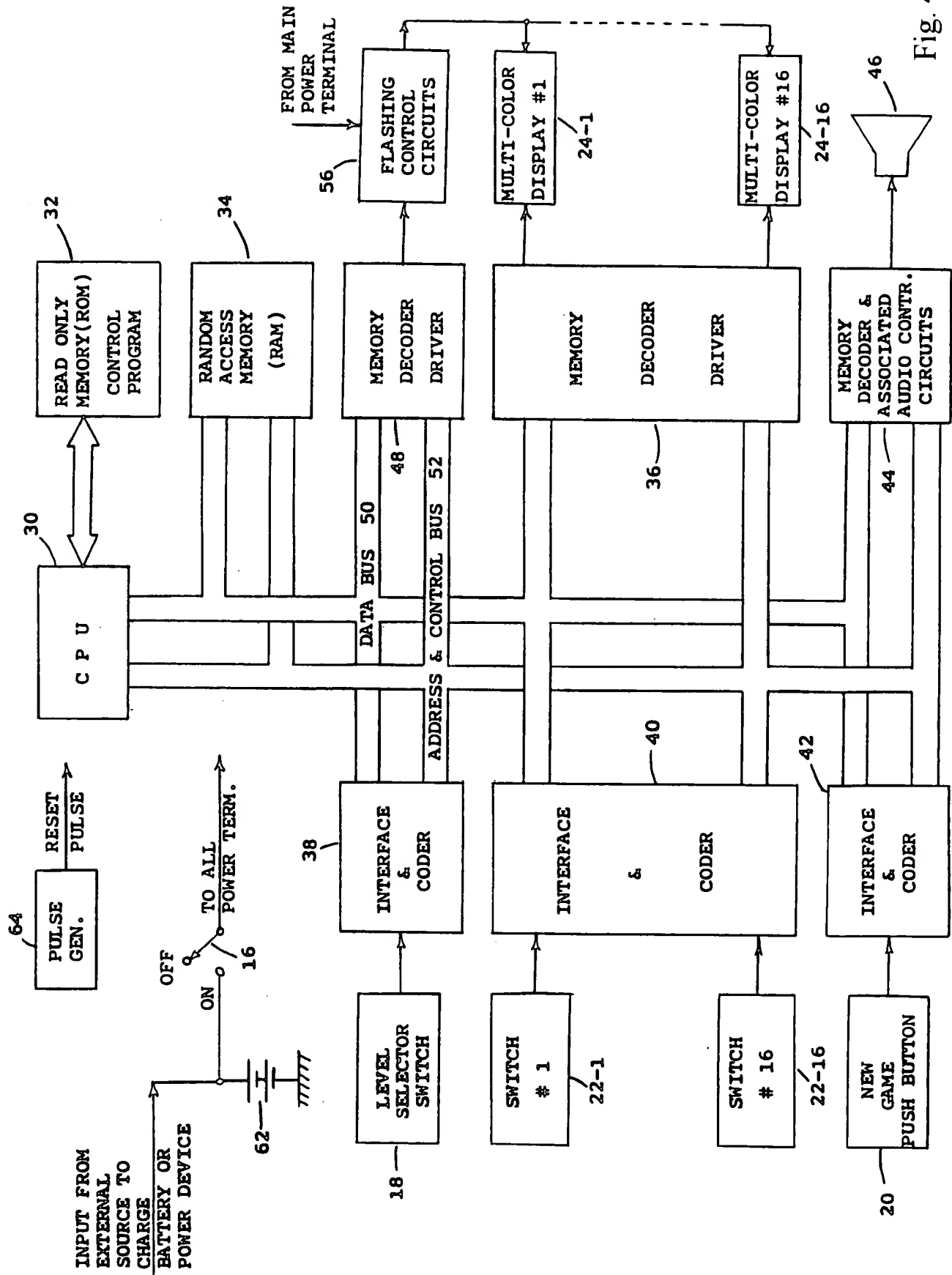


Fig. 4

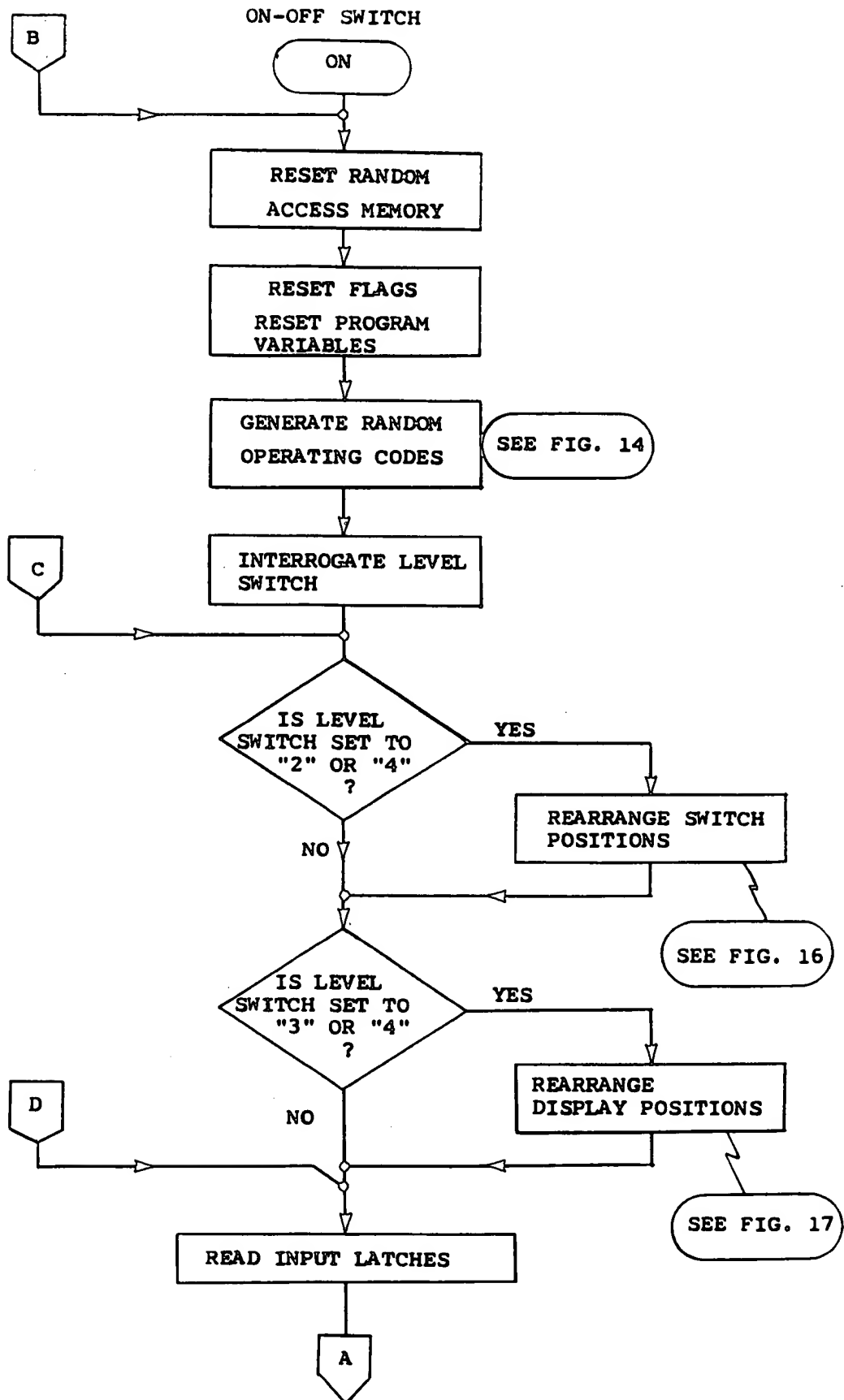


FIG. 5



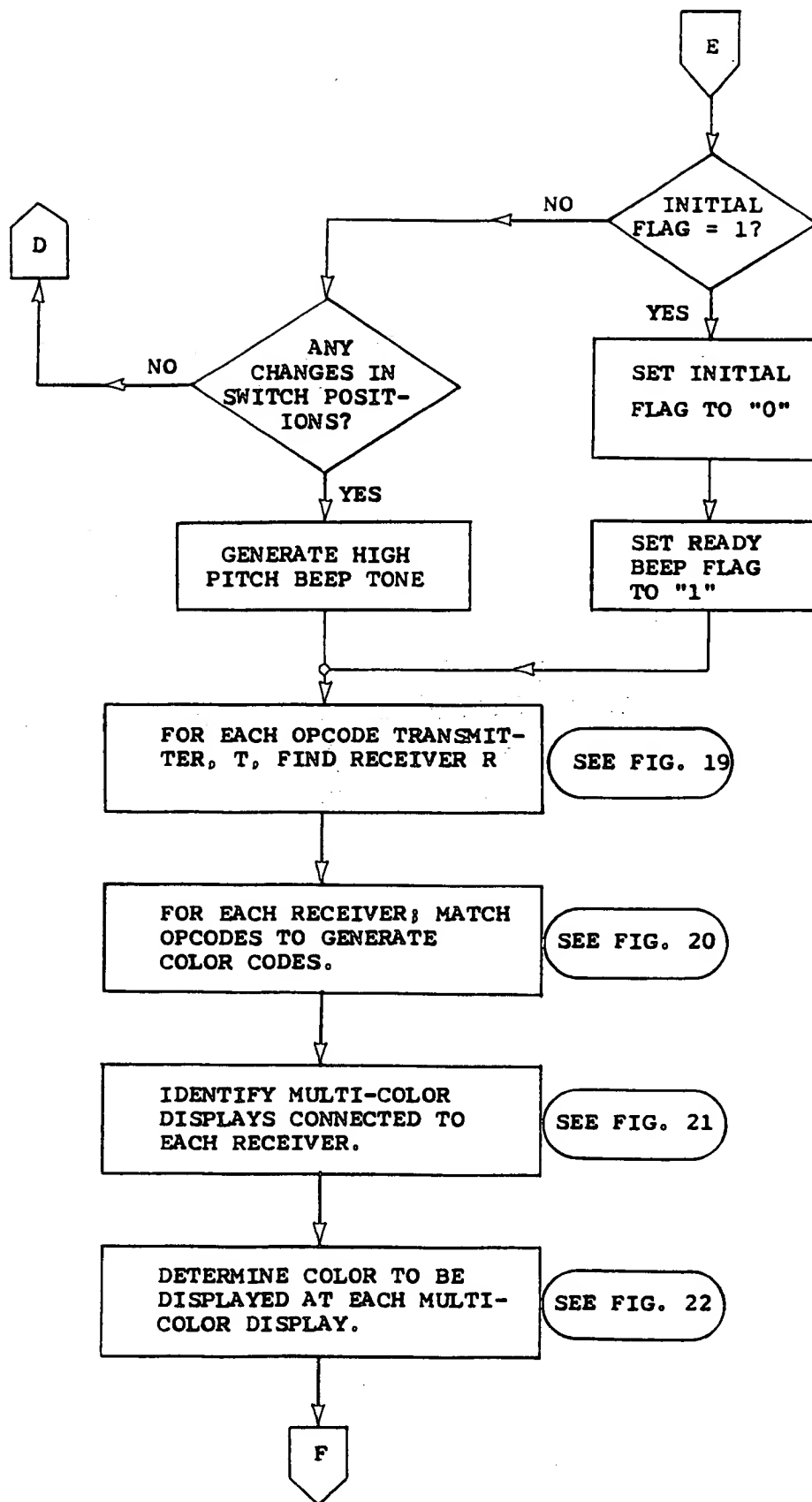


FIG. 7

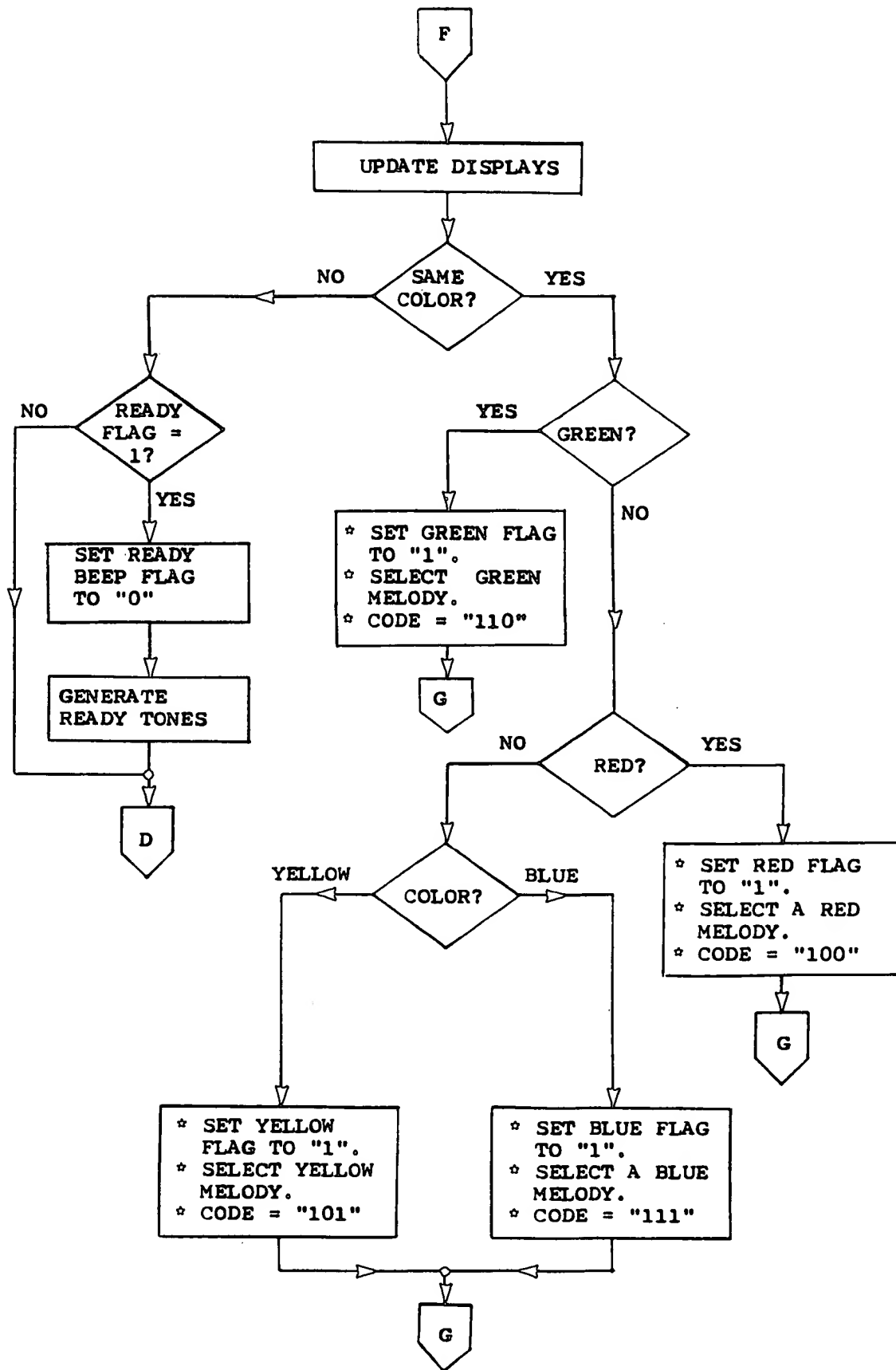


FIG. 8



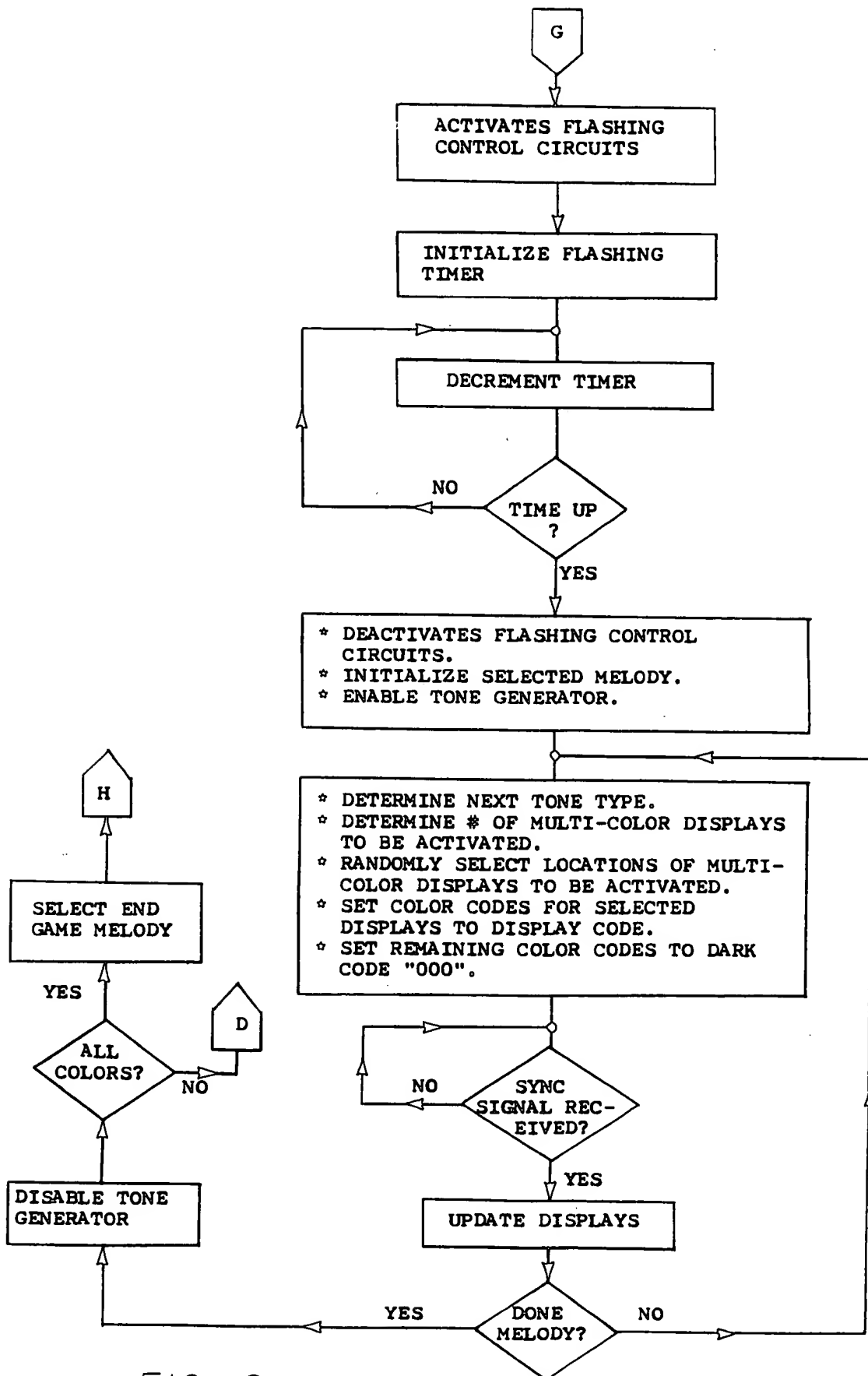


FIG. 9

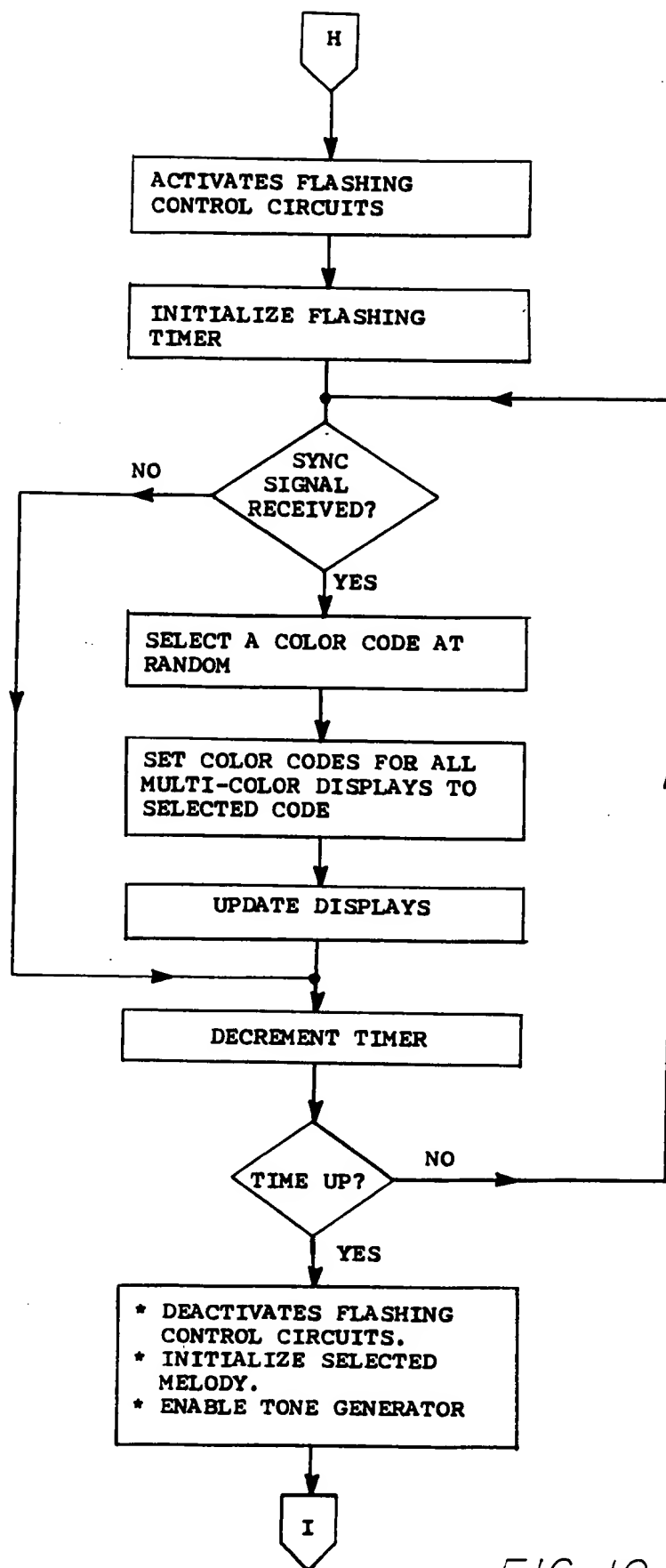


FIG. 10

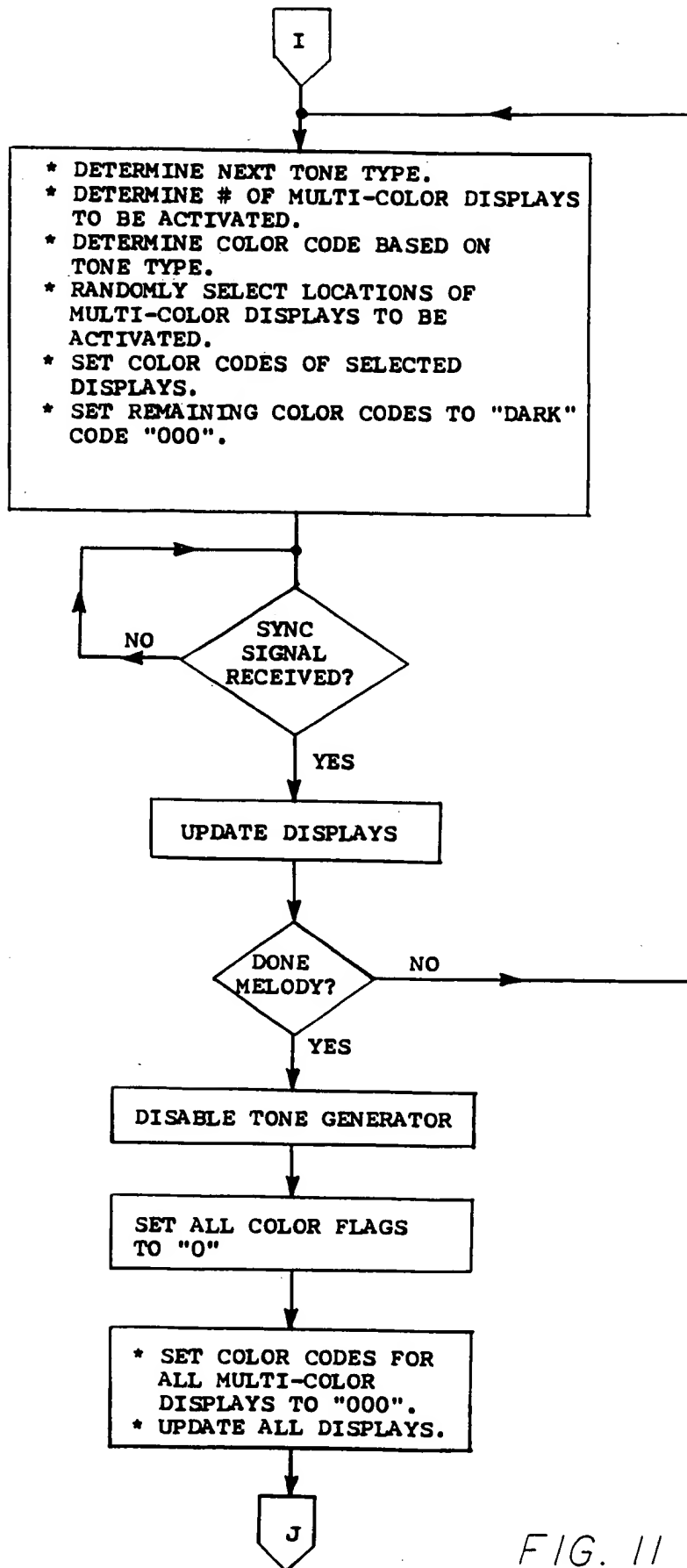


FIG. 11

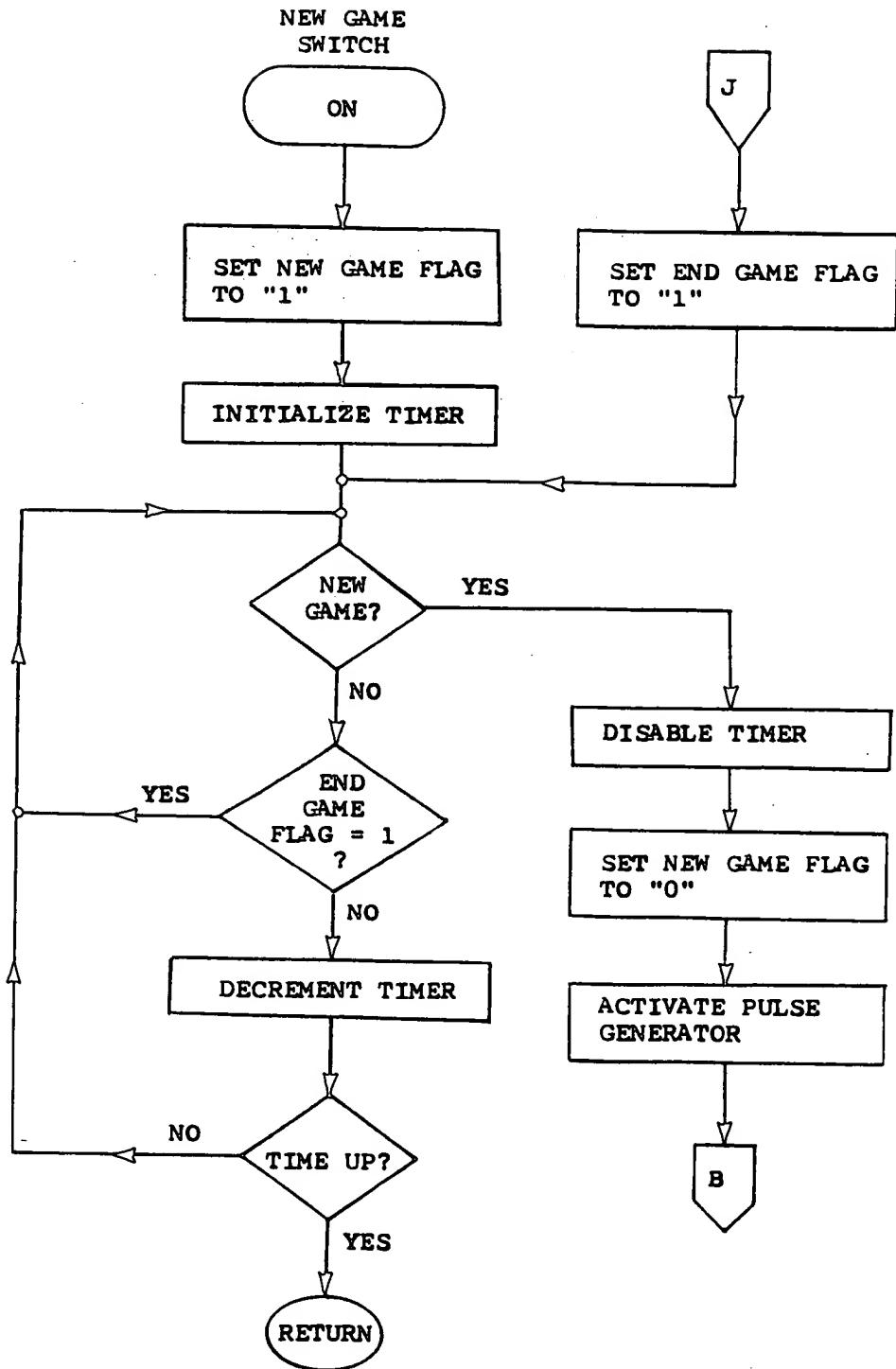


FIG. 12

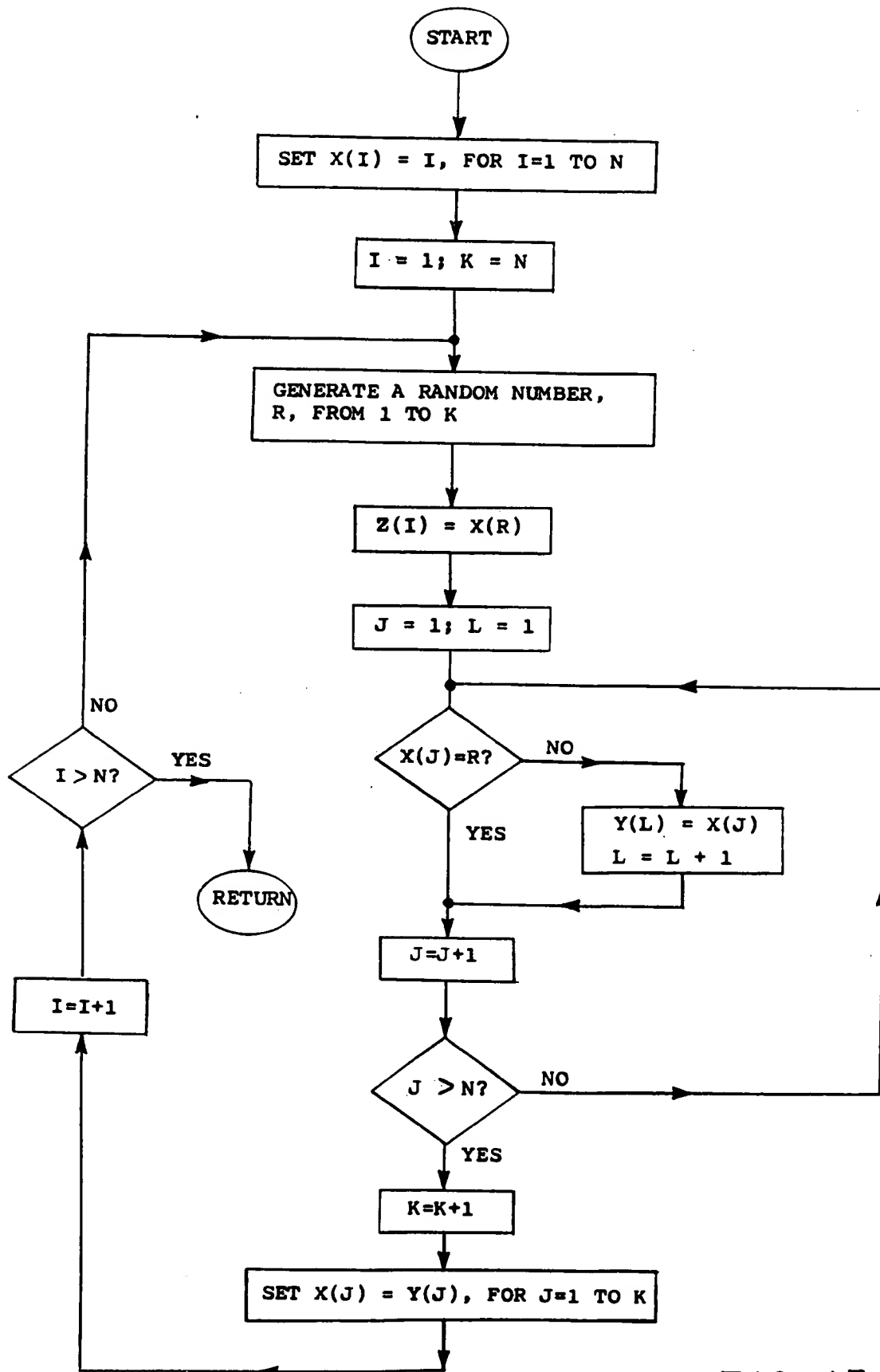


FIG. 13

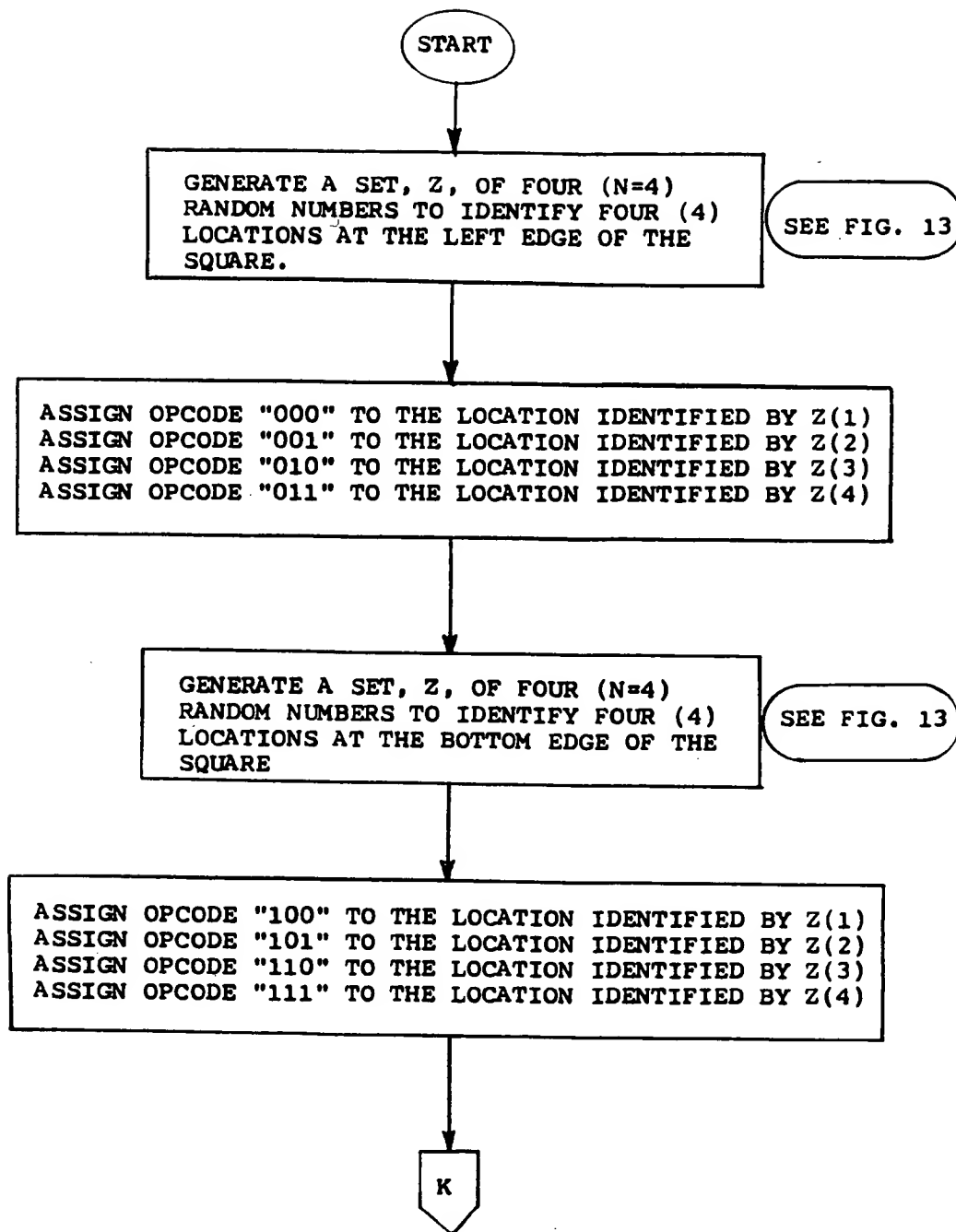


FIG. 14

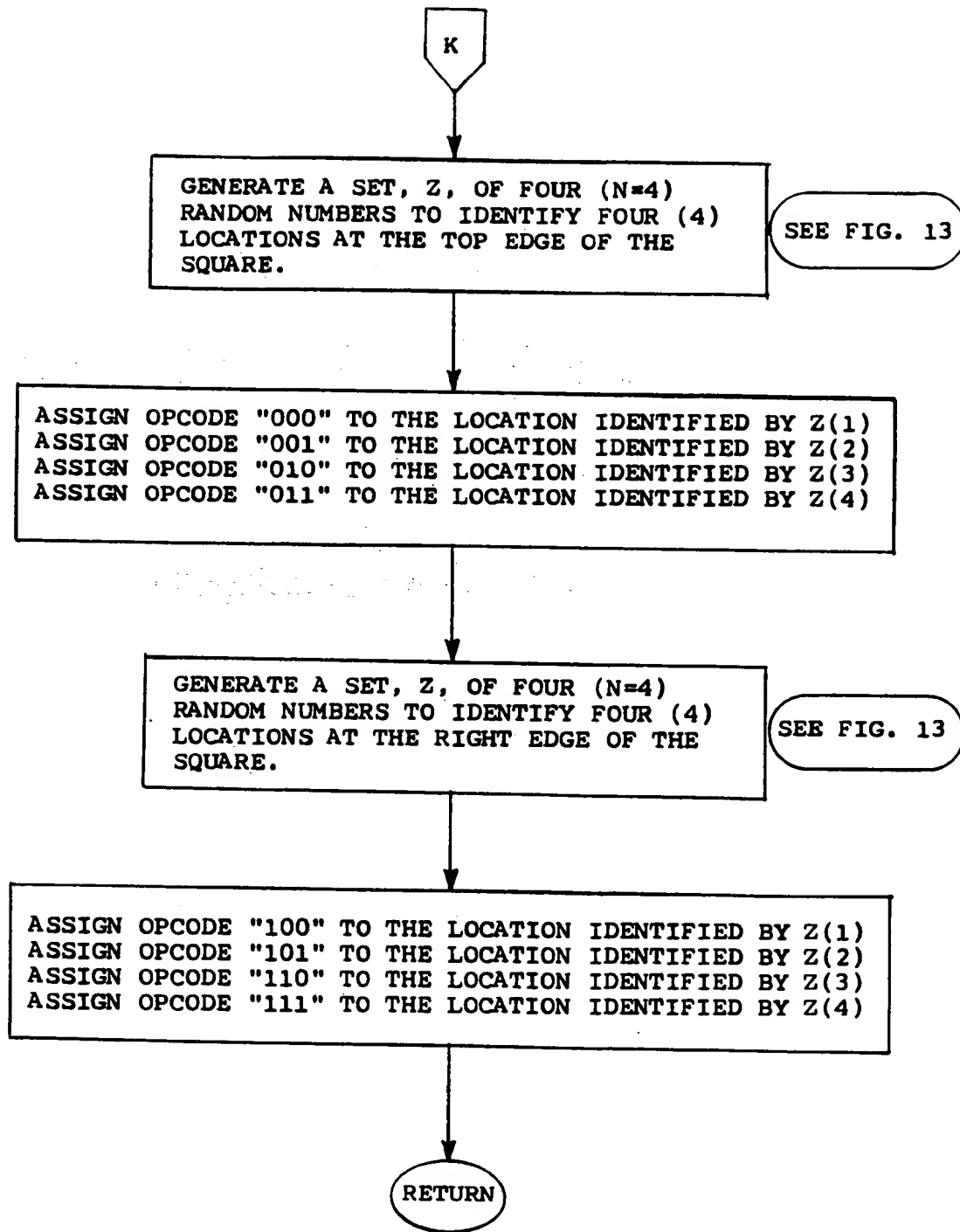


FIG. 15

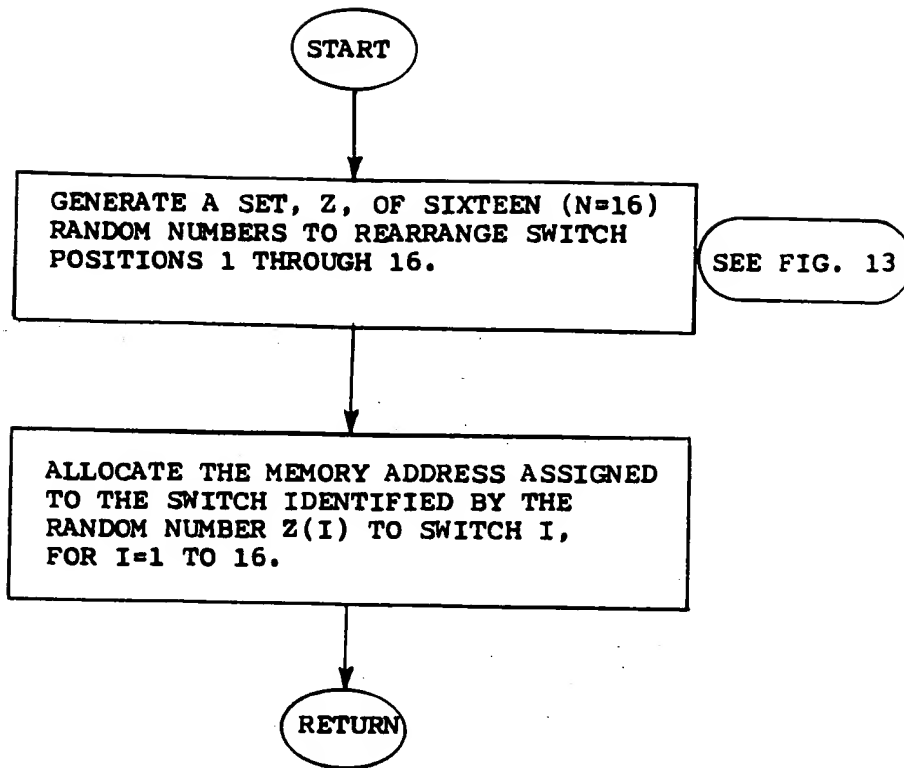


FIG. 16

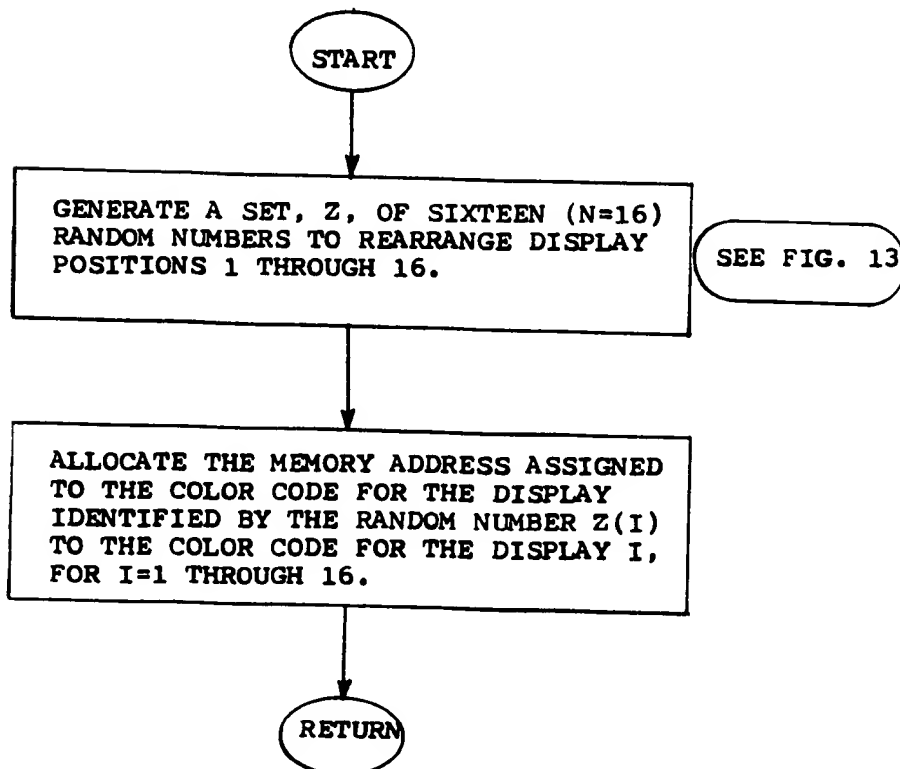


FIG. 17



## LEGEND

N	: DIMENSION OF LOGIC GAME = NUMBER OF PREDETERMINED COLORS WHICH MAY BE DISPLAYED, (EXCLUDED REFLECTED COLOR WHEN DISPLAY IS DARK) = 4 (FOR THE PREFERRED EMBODIMENT)
n	: NUMBER OF BINARY BITS IN OPCODE AND COLOR CODE = $\ln N + 1 = 3$ (FOR THE PREFERRED EMBODIMENT)
I	: ROW NUMBER I, $I = 1, \dots, N$
J	: COLUMN NUMBER J, $J = 1, \dots, N$
DIR	: ROUTE DIRECTION BETWEEN TWO ADJACENT ROUTING SQUARES; "R" DENOTES RIGHT "U" DENOTES UP "L" DENOTES LEFT "D" DENOTES DOWN
T	: OPCODE TRANSMITTER; $T = 1, \dots, 2N$
R	: OPCODE RECEIVER; $R = 1, \dots, 2N$
RC(T)	: RECEIVER CONNECTED TO TRANSMITTER "T"
TC(R)	: TRANSMITTER CONNECTED TO RECEIVER "R"
W(I,J)	: STATUS OF SWITCH LOCATED AT ROW "I" AND COLUMN "J," OR STATUS OF ROUTING SQUARE AT ROW "I" AND COLUMN "J"
TCODE(T)	: OPCODE AT TRANSMITTER "T"
RCODE(R)	: OPCODE AT RECEIVER "R"
C(R)	: COLOR CODE AT RECEIVER "R"
x(i)	: THE $i$ th BIT OF OPCODE "X"
y(i)	: THE $i$ th BIT OF OPCODE "Y"
cb(i)	: THE $i$ th BIT OF COLOR CODE "C"
C1(I,J)	: COLOR CODE AT THE RIGHT EDGE OF THE ROUTING SQUARE LOCATED AT ROW "I" AND COLUMN "J"
C2(I,J)	: COLOR CODE AT THE TOP EDGE OF THE ROUTING SQUARE LOCATED AT ROW "I" AND COLUMN "J"
C(I,J)	: COLOR CODE SELECTED FOR DISPLAY AT THE ROUTING SQUARE LOCATED AT ROW "I" AND COLUMN "J"
$\oplus$	: EXCLUSIVE OR BOOLEAN FUNCTION
$\odot$	: EXCLUSIVE NOR BOOLEAN FUNCTION

EXPLANATION OF PROGRAM VARIABLES OF FIGS. 19 - 22

FIG. 18 - AMENDED

**NOTE:**

\* SEE FIGURE 18 FOR EXPLANATION OF PROGRAM VARIABLES.

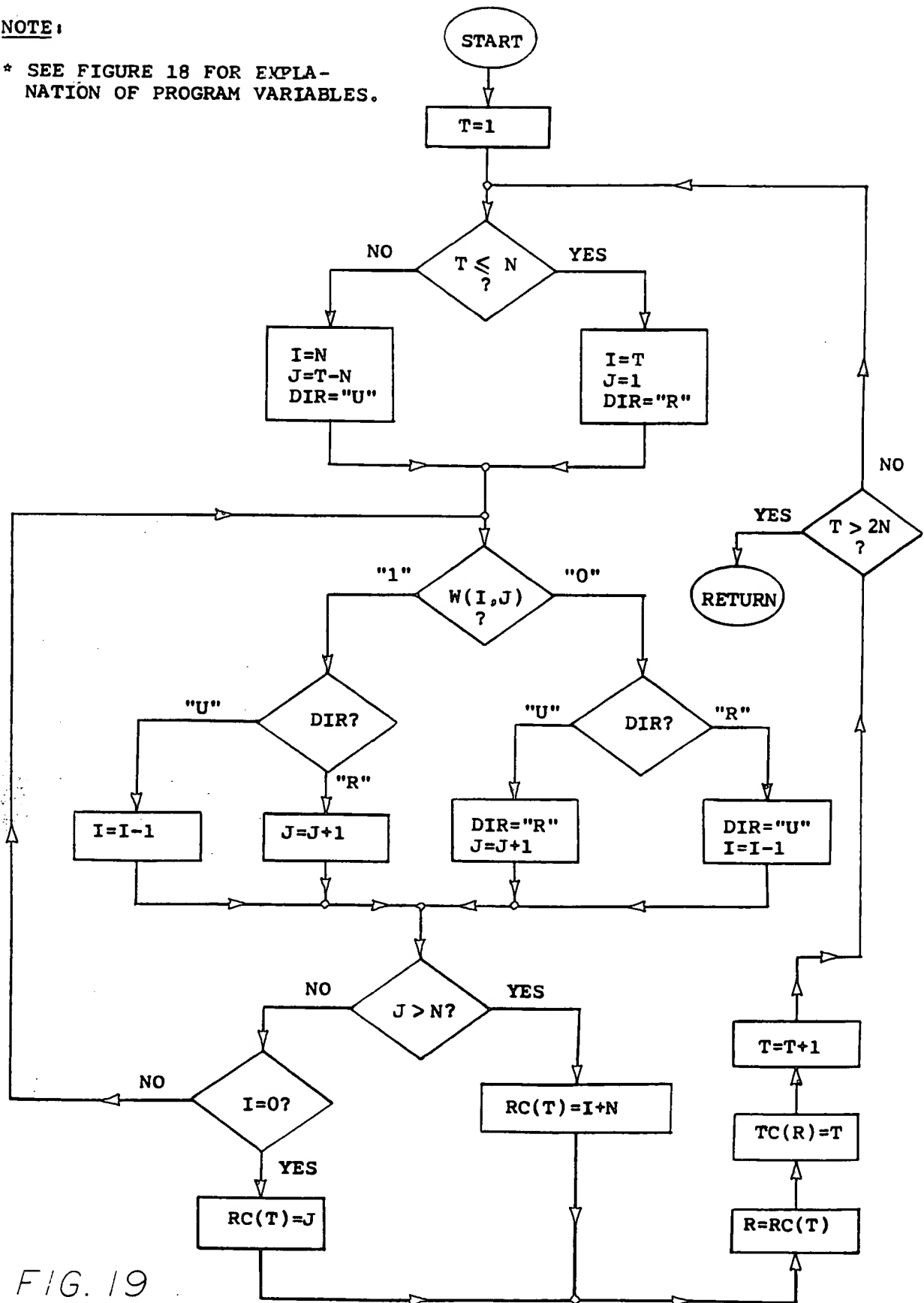
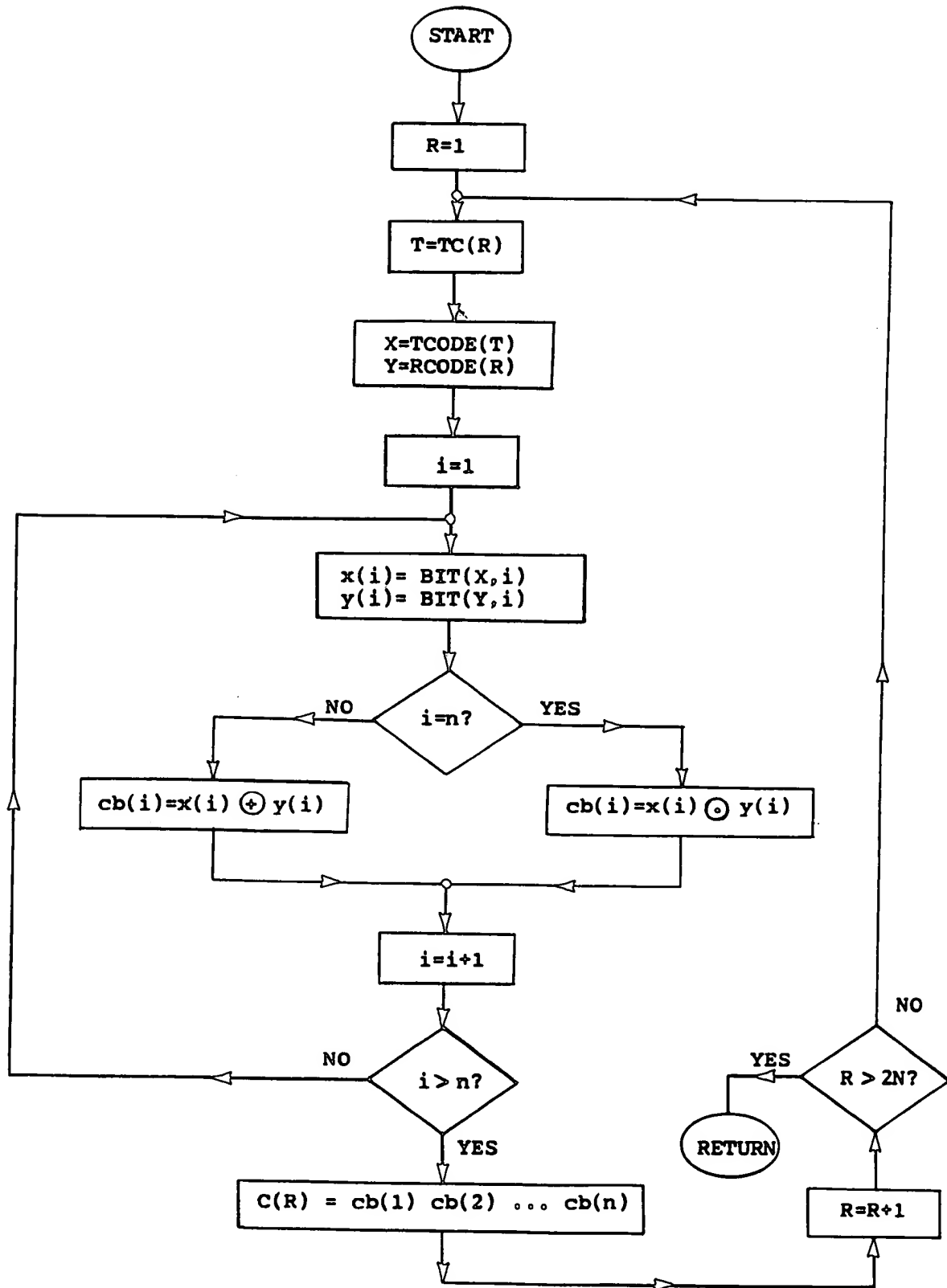


FIG. 19



**NOTE:**

☆ SEE FIGURE 18 FOR EXPLANATION  
OF PROGRAM VARIABLES.

FIG. 20

**NOTE:**

★ SEE FIGURE 18 FOR  
EXPLANATION OF PROGRAM  
VARIABLES.

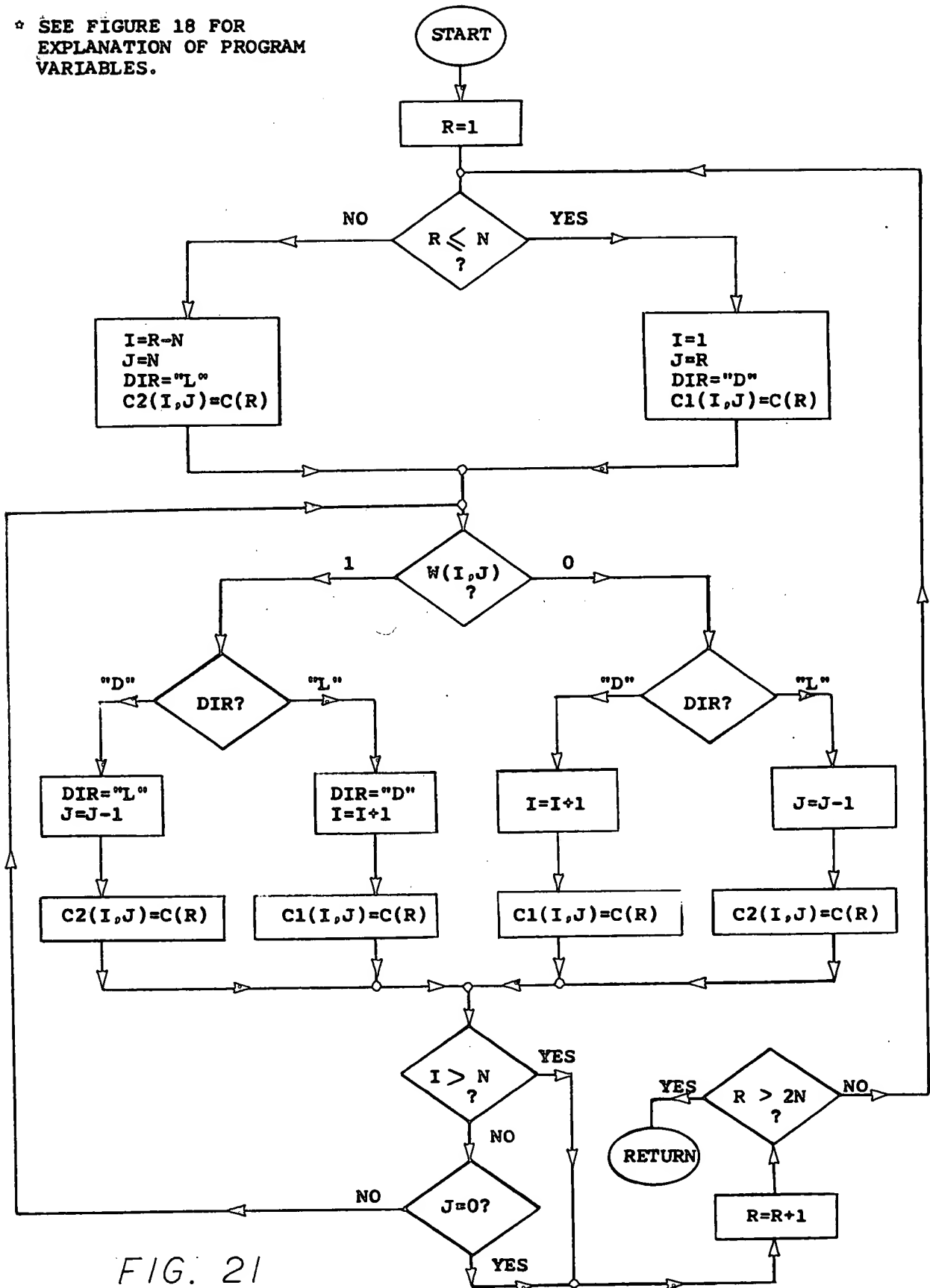
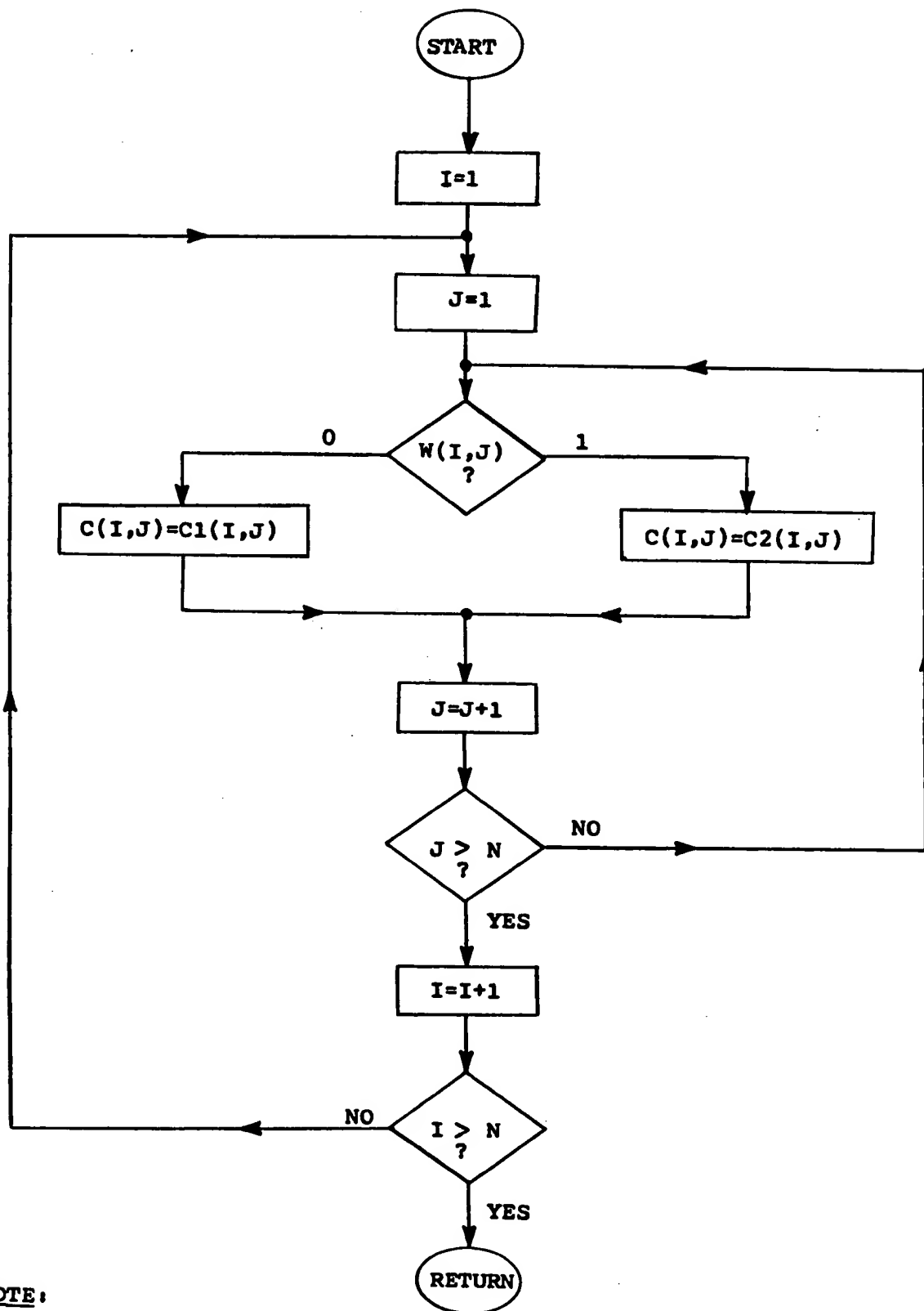


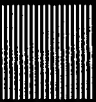
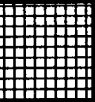


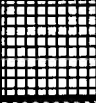
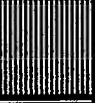
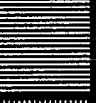




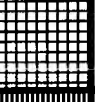




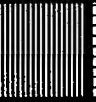
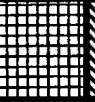
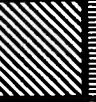

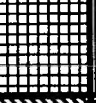
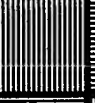




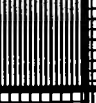





FIG. 21

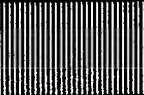
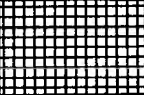




**NOTE:**

\* SEE FIGURE 18 FOR EXPLANATION  
OF PROGRAM VARIABLES.

FIG. 22

OPCODE	0	0	0	0	1	1	1	1
	0	0	1	1	0	0	1	1
	0	1	0	1	0	1	0	1
0 0 0								
0 0 1								
0 1 0								
0 1 1								
1 0 0								
1 0 1								
1 1 0								
1 1 1								

COLOR CODE	1 0 0	1 0 1	1 1 0	1 1 1	0 - -
COLOR					

COLOR ASSIGNMENT FOR N = 4

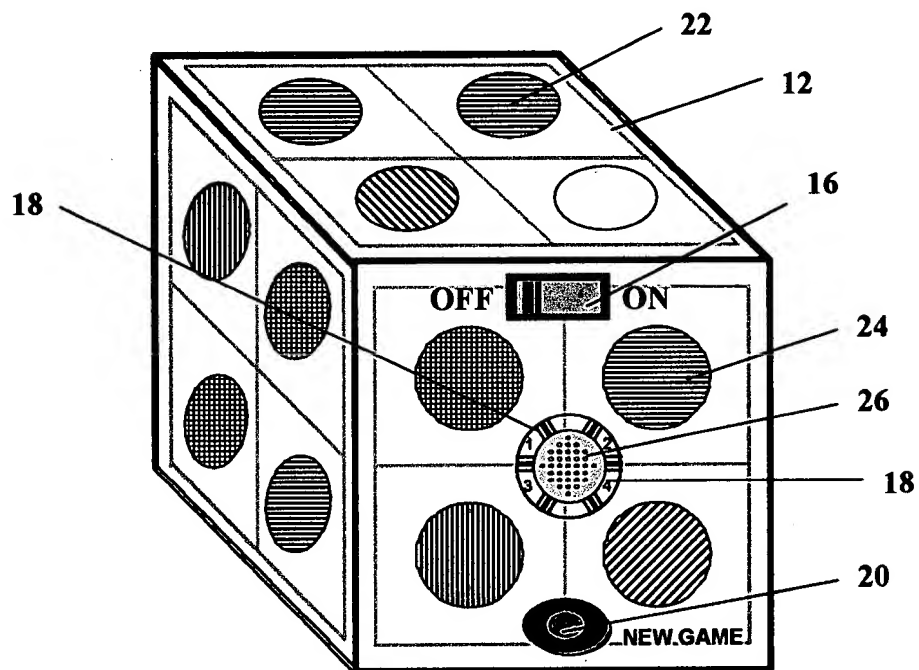
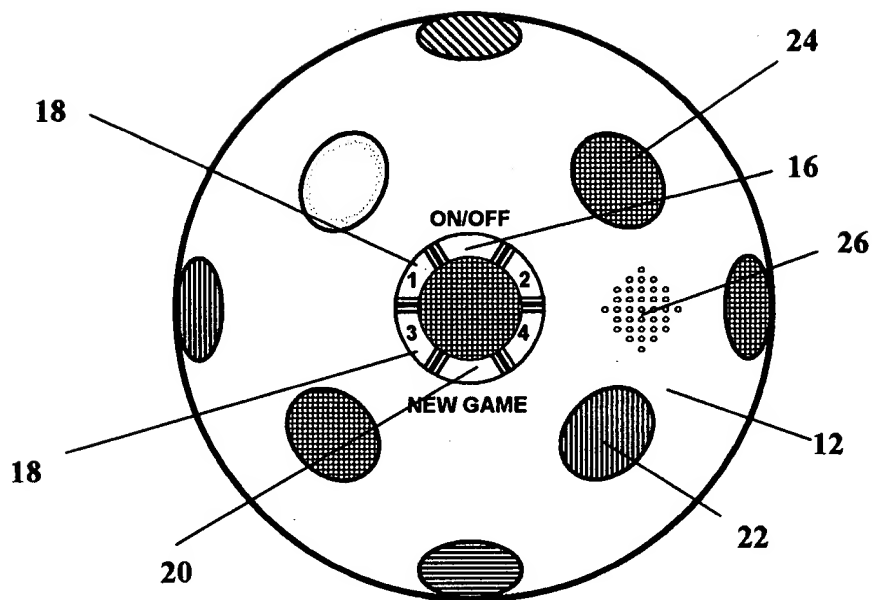
FIG. 23 - AMENDED

OPCODE	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
0000																
0001																
0010																
0011																
0100																
0101																
0110																
0111																
1000																
1001																
1010																
1011																
1100																
1101																
1110																
1111																

COLOR CODE	1000	1001	1010	1011	1100	1101	1110	1111	0---
COLOR									

COLOR ASSIGNMENT FOR N = 8

FIG. 24 - AMENDED



**MAPPING OF INDICATORS ON 3 DIMENSIONAL CONFIGURATION**

**FIG. - 25 - NEW**

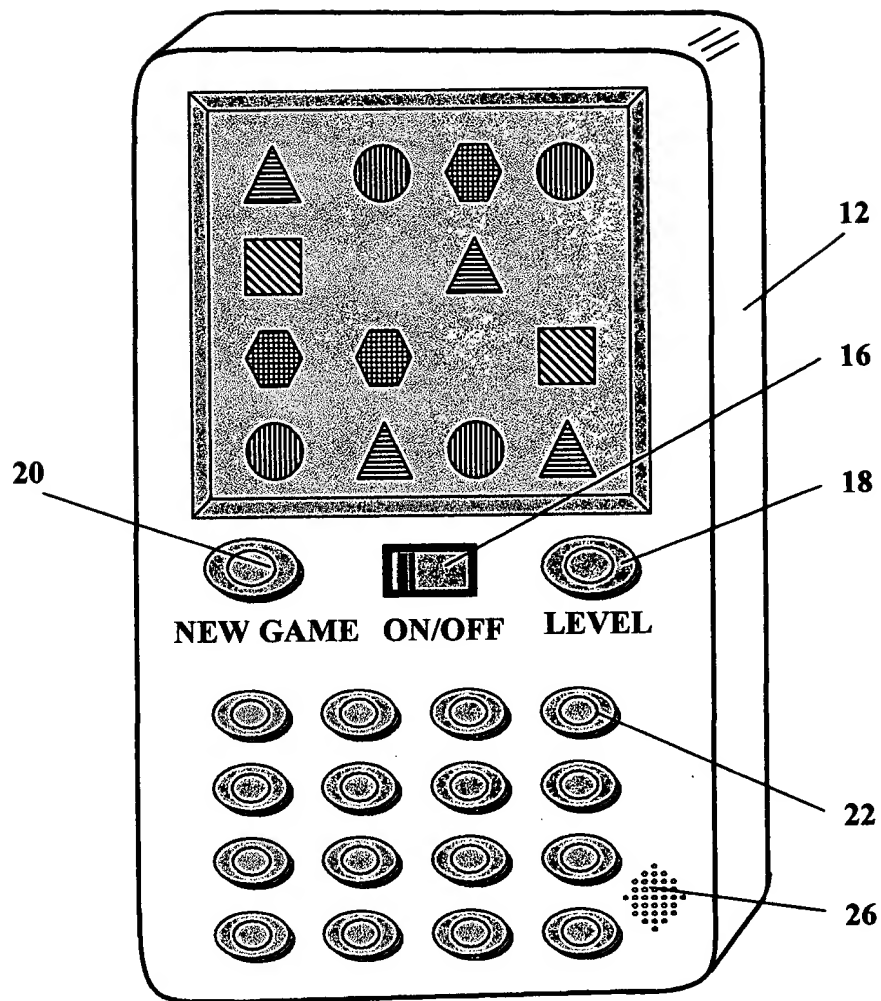


OPCODE	0	0	0	0	1	1	1	1
	0	0	1	1	0	0	1	1
	0	1	0	1	0	1	0	1
0 0 0								
0 0 1								
0 1 0								
0 1 1								
1 0 0								
1 0 1								
1 1 0								
1 1 1								

COLOR CODE	1 0 0	1 0 1	1 1 0	1 1 1	0 - -
COLOR					

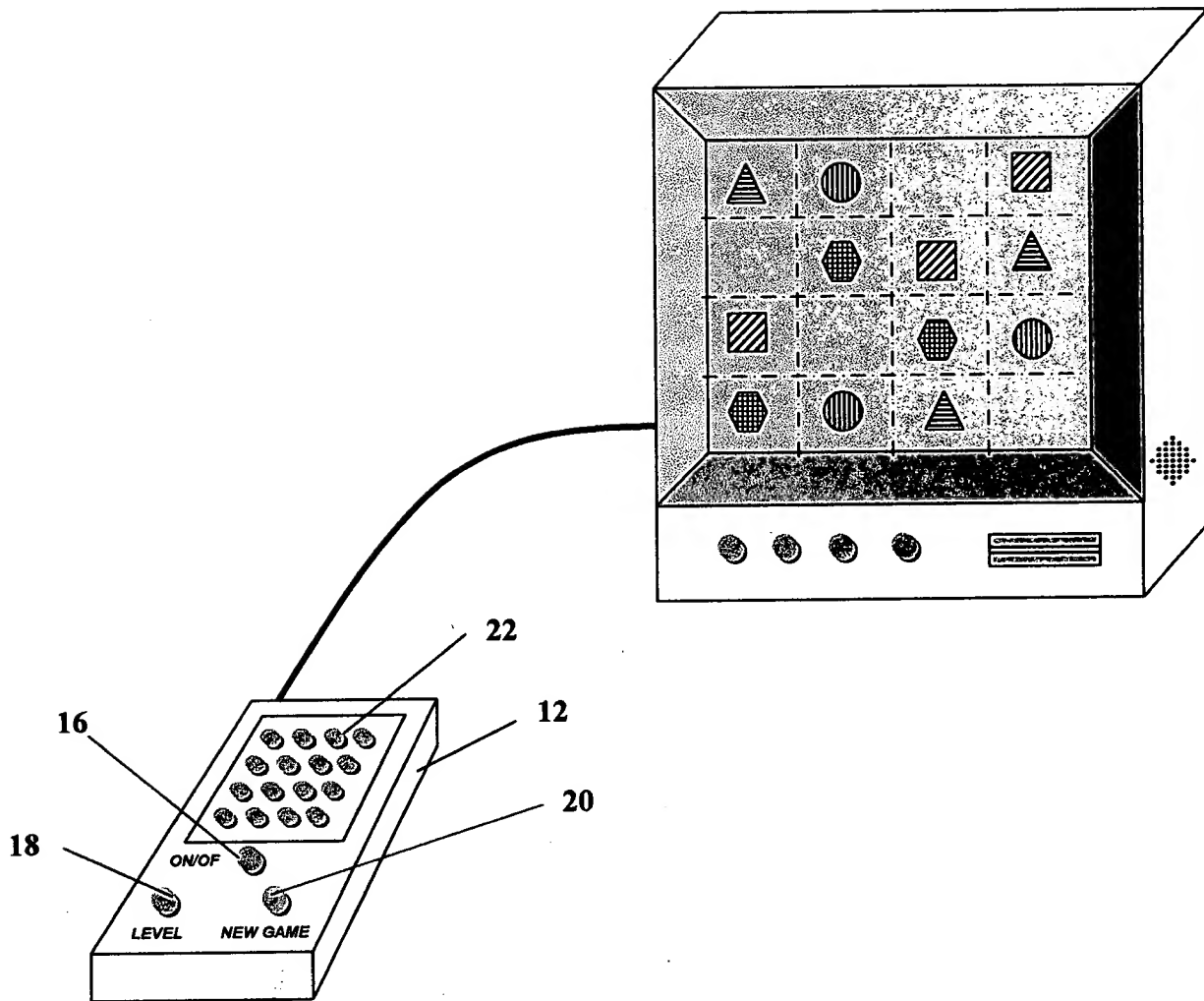
**COLOR ASSIGNMENT FOR N = 4**  
**(Color codes assigned to 2 colors)**

**FIG. 26 - NEW**



**ALTERNATE EMBODIMENT USING LCD SCREEN**

**FIG. 27 - New**



**CONNECTION TO VIDEO MONITOR**

**FIG. 28 - NEW**